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STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Chief, Communications Engineering Division DATE: SPM 6-647 18 December 1956

FROM : Chief, Supplemental Programs Division, OC

SUBJECT: Low Frequency Antenna System for the [redacted] Marine Video Receiver 25X1

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1. You are aware that the present low frequency configuration of the [redacted] Marine Video receiving system is entirely too large. Its present form is somewhat impractical for the intended application. To correct this, your Division has been reviewing antennas presently available in the range of 50 - 400 megacycles, the determinant range for the present antenna size. 25X1

2. [redacted] has submitted a proposal for 30 inch spiral antennas which appear to have suitable characteristics. It is requested that you undertake to obtain four of the antennas for evaluation as replacement antennas for the present cross dipoles supplied by the [redacted] 25X1 25X1

3. Allocation number 7-7912-50-600 may be used for this charge. 25X1

[redacted]

Attachments
1 - [redacted] dated 5 Nov 56 25X1
2 - [redacted] Letter dated 30 Nov 56

Distribution
Orig & 1 w/atts - Addressee

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[redacted]

25X1

The proposed antenna has the following additional characteristics:

Cavity Diameter	30"
Cavity Depth	12"
Input Connection	Type "N"
Antenna Weight	37 lbs.
VSWR (150 to 400 mc)	Less than 2:1
VSWR (50 to 150 mc)	Less than 5:1

For your application it may be possible to utilize a spiral antenna without a cavity to obtain a figure eight beam shape. Thus, only two antennas would be required for 360° coverage. Three or four antennas are recommended for 360° coverage for antennas with cavities.

A "ball park" estimate of the cost of four prototype 30-inch spiral antennas is $7,000.00. We would be very happy to furnish a firm quotation to you if you so desire.

If we can be of any further service to you at this time, please call upon us.

Very truly yours,

[redacted]

25X1

[redacted]

25X1

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[redacted] 25X1

H-2061-151-GHT-56

[redacted] 25X1

30 November 1956

[redacted] 25X1

Subject: Antenna System for ELINT Maritime Receiver

Dear Frank:

Since you have indicated that a smaller antenna system for the lower bands would be desirable, we have made inquiries of several antenna manufacturers attempting to determine what could be accomplished in this direction. The most promising reply received to date is from the [redacted], In our request 25X1
to [redacted] for information, we asked what could be done in 25X1
the way of an antenna to work from 50 to 400 mcs which would fit
in a square with a four foot diagonal. A copy of [redacted] 25X1
reply is enclosed.

As you can see from the figures quoted by [redacted], a spiral 25X1
antenna designed to operate efficiently at 50 mcs would be 75"
in diameter; for 70 mcs, the antenna would be approximately 53.5
inches in diameter. This is to be compared to the 63 inch dipole
assembly presently used for band 1. It is to be noted, however,
that this one antenna assembly would serve both bands 1 and 2.

If the 30" antenna mentioned by [redacted] is to be con- 25X1
sidered, it will be necessary to conduct rather extensive tests
to determine the patterns, polarizations, and sensitivities which
would be obtained at the lower frequencies. If installation space
requirements demand an antenna approaching this size, a test pro-
gram to determine suitability should be initiated as soon as possi-
ble. This investigation, if undertaken, should be extended to de-
termine the desirability of utilizing a spiral antenna on the upper
frequency bands also.

If you desire any further action by us on this matter, please
bring it to the attention of Mr. [redacted]. 25X1

Very truly yours,

[redacted] 25X1

Engineering Department

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GHT:mcc

cc: [redacted]

25X1